

Preferably, the elastomer, gel, hydrogel, foam or other similar material 66 serves to retain microspheres 62 within catheter 64 in a substantially uniform distribution to thereby provide a substantially uniform radiation dose over the entire treatment zone. The radiation source 62 is preferably separated from the remainder of catheter 64 by a spacer 65. Optionally, the catheter 64 of Fig. 7A may be provided with a removable plug 63 at the distal end thereof to provide access to the area where the radioactive source 61 is housed.

IN THE CLAIMS

11. (Amended) A catheter as claimed in claim 7, further comprising a retractable sheath which comprises a radiation shielding material, said retractable sheath being positionable in a first, shielding position, wherein the sheath encloses the portion of the catheter body to which the radioactive source is bonded in which the radioactive source is housed, and a second, retracted position which exposes the portion of the catheter body to which radioactive source is bonded in which the radioactive source is housed to permit radiation treatment of a desired location in the body.

12. (Amended) A catheter as claimed in claim 7, wherein the radioactive source is housed in a carrier located in the distal end of a carrier located in the catheter body.

15. (Amended) A catheter useful for radiation treatment of a body which comprises: an elongate flexible catheter body;

an elongate, flexible carrier having a proximal section and a distal section;
a retractable sheath which comprises a radiation shielding material, said sheath being positionable in a first, shielding position wherein the sheath encloses the portion of the flexible carrier and a second, retractable position which exposes the portion of the flexible carrier in which the radioactive source is housed to permit radiation treatment of a desired location in the body;

a radioactive source housed within a cavity in the distal section of the flexible carrier, the radioactive source providing radiation in an amount of from about 0.5 microcuries to about 300 curies per centimeter length of the radioactive portion of the flexible carrier;

at least a portion of the flexible carrier being removable to provide access to the cavity wherein the radioactive source is housed; and

wherein the flexible carrier is sized and has sufficient strength and flexibility to navigate a portion of the body so that the radioactive source can be positioned at a desired location for treatment.

21. (Amended) A catheter attachment useful for radiation treatment of a body which comprises:

a substrate;

a radioactive source associated with the substrate, said radioactive source and substrate being positioned within a portion of the catheter attachment, the radioactive source providing radiation in an amount of from 0.5 microcuries to about 300 curies per centimeter length of the radioactive portion of the catheter attachment in which said radioactive source is positioned; and

wherein the catheter attachment includes structure which cooperates with structure on a catheter for releasably attaching the catheter attachment to the catheter at or near the distal end of the catheter so that the catheter can be employed to position the radioactive source at a desired location for treatment.

31. (Amended) A device for use with a catheter for delivery of a therapeutic radiation dose to a treatment zone which comprises:

an expandable housing,

a plurality of chambers in said housing in fluid communication with a single fluid pathway for introduction and removal of fluid from said plurality of chambers, said chambers and housing being arranged such that upon expansion of the device, a pathway for flow of bodily fluids through said device is provided such that the device does not occlude a vessel or lumen when expanded in said vessel or lumen.

a mount for mounting the device on a guide wire in a manner whereby the device can be guided through a body using said guide wire, and

a radiation source associated with said device,

said device being sized such that when expanded, the device conforms to the treatment zone to thereby substantially immobilize the device in the treatment zone.

33. (Amended) The device as claimed in claim ~~32~~31, wherein the radiation source is located on or substantially adjacent to an outer surface of the housing.

34. (Amended) The device as claimed in claim ~~3231~~3231, wherein the device further comprises a radiation stable outer coating which isolates the radioactive material from direct contact with the body to be treated during use of the device.

35. (Amended) The device as claimed in claim ~~3231~~3231, wherein the device is sized such that when expanded it conforms to the size of the treatment zone without substantially deforming surrounding body tissue to thereby minimize trauma in the treatment zone.